



# Standardisation efforts of ISO/TC 261 “Additive Manufacturing”: Reports from 14th and 15th Plenary Meeting

Eujin Pei<sup>1</sup> Received: 28 May 2020 / Accepted: 7 July 2020 / Published online: 20 July 2020  
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## Abstract

The main objective of ISO/TC 261 is to standardise the processes of Additive Manufacturing, the process chains (Data, Materials, Processes, Hard- and Software, Applications), test procedures, quality parameters, supply agreements, environment, health and safety, fundamentals and vocabularies. The technical contents for those standards are developed in different Working Groups of ISO/TC 261. This section provides readers with news regarding standardisation efforts of ISO/TC 261.

**Keywords** Standardisation · Standards · Additive manufacturing

## 1 New joint groups

1. Establishment of ISO/TC 261/JG 78 “Safety regarding AM-machines (relating to harmonized European Standards, Type C-Standard)” with the following scope: “ISO/TC 261/JG 78 is a Joint group for drafting safety standards for additive manufacturing machines used for the seven process categories as identified in ISO 17296-2 and using all different types of materials (e.g. metals, polymers and ceramics) as feedstock. The purpose of this group is to draft standards to be harmonized regarding the European Machinery Directive in order to give presumption of conformity to this Directive for the essential requirements covered by the standard.” ISO/TC 261/JG 78 would be allocated to parent committees ISO/TC 261/WG 6 and ASTM F42 06 [1].
2. Establishment of ISO/TC 261/JWG 12 “Joint ISO/TC 261-ISO/TC 150 WG, Additive manufacturing in surgical implants” with the following scope: “Standards (i.e., development of new standard(s) and revising existing standards) to address critical factors in the field of additive manufacturing in surgical implant applications [1]”.
3. Establishment of ISO/TC 261/AHG 6 “Coordination of work between ISO/TC 261 and ISO/TC 184/SC 1

and ISO/TC 184/SC 4” with the following scope: “The ad-hoc group has the specific scope of facilitating communication between ISO/TC 261 and ISO/TC 184/SC 1 and ISO/TC 184/SC 4. It is expected to act to ensure the absence of overlapping between the activities of these TCs promoting early stage bidirectional communication on ongoing and new projects [1]”.

## 2 New projects

1. Preliminary work item ISO/ASTM NP 52930 “Guideline for Installation/Operation/Performance Qualification (IQ/OQ/PQ) of Laser-Beam Powder Bed Fusion Equipment for Production Manufacturing” assigned to ISO/TC 261/JG 72 and registered as a joint ISO/ASTM standards project [2].
2. Preliminary work item ISO/ASTM NP 52935 “Additive manufacturing—Qualification principles—Qualification of coordinators for metallic parts production” assigned to ISO/TC 261/JG 74 and registered as a joint ISO/ASTM standards project [2].
3. Preliminary work item ISO/ASTM PWI 52937 “Additive manufacturing—Qualification principles—Qualification of Designer for metallic parts production” assigned to ISO/TC 261/JG 74 and registered as a joint ISO/ASTM standards project [2].
4. Preliminary work item ISO/ASTM PWI 52938-1 “Additive manufacturing—Environmental Health and Safety—Part 1: Safety requirements for PBF-LB machine

✉ Eujin Pei  
[eujin.pei@brunel.ac.uk](mailto:eujin.pei@brunel.ac.uk)

<sup>1</sup> Brunel University London, Uxbridge, UK

using metallic feedstock” assigned to ISO/TC 261/JG 78 and registered as a joint ISO/ASTM standards project [1].

### 3 Projects due for ballot

1. Two projects being finalised by ISO/TC 261/JWG 5 “Joint ISO/TC 261-ISO/TC 44/SC 14 WG, Additive manufacturing in aerospace applications” for ISO/FDIS-ballot: ISO/ASTM DIS 52941 “Additive manufacturing—System performance and reliability—Standard test method for acceptance of powder-bed fusion machines for metallic materials for aerospace application”; and ISO/ASTM DIS 52942 “Additive manufacturing—Qualification principles—Qualifying machine operators of laser metal powder bed fusion machines and equipment used in aerospace applications” [2].

### 4 Revision of standards

1. Revision of ISO 27547-1 will be registered as a preliminary work item ISO/ASTM PWI 52936-1 “Additive manufacturing—Qualification principles—Laser based powder bed fusion of polymers—Part 1: General principles, preparation of test specimens” and assigned to ISO/TC 261/JWG 11 [2].
2. ISO/ASTM 52902 “Additive manufacturing—Test artifacts—Geometric capability assessment of additive manufacturing systems” is due for revision and assigned to ISO/TC 261/WG 3 [2].

### 5 Change of title

1. Changing the numbering of ISO/ASTM PWI 52913 to ISO/ASTM PWI 52913-1 and changing the title to “Additive manufacturing—Test methods for characterization of powder flow properties for AM applications—Part 1: General requirements” [2].
2. Changing the title of ISO/ASTM DIS 52924 “Additive manufacturing—Qualification principles—Quality grades for additive manufacturing of polymer parts” to ISO/ASTM DIS 52924 “Additive manufacturing—Qualification principles—Classification of part properties for additive manufacturing of polymer parts” [2].

### 6 Change of scope

1. Changing the scope of ISO/TC 261/JG 77 “Joint ISO/TC 261-ASTM F 42 Group Test method of sand mould for metal casting” to the following “ISO/TC 261/JG 77 is a Joint group responsible for the standardisation of meth-

ods for testing sand moulds made by additive manufacturing technologies. Note: Typical areas for testing sand moulds includes, but is not limited to, bending strength, compression strength, gas permeability, and others” [1].

### 7 Cancellation of project

1. Cancellation of ISO/ASTM PWI 52934 “Additive manufacturing—Environmental health and safety—Standard guideline for hazard risk ranking and safety defense” due to no progress being made in the last 2 years, and the fact that the planned scope is covered by ISO/ASTM AWI 52931 “Additive manufacturing—Environmental health and safety—Standard guideline for use of metallic materials” [1].

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### Compliance with ethical standards

**Conflict of interest** None.

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